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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,160	03/17/2005	Ichiro Hazeyama	Q86110	6481
23373	7590	03/17/2006		
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER TAYLOR, EARL N	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/528,160

Applicant(s)

HAZEYAMA ET AL. 

Examiner

Earl N. Taylor

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 March 2005 - 3 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5 and 8 is/are rejected.
- 7) ☒ Claim(s) 4 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

This office acknowledges receipt of the following items from the applicant: Information Disclosure Statement (IDS) filed on 17 March 2005. The references cited on the PTOL 1449 form have been considered.

### ***Claim Objections***

Claim 7 objected to because of the following informalities: Claim 7 recites "of \_said" and should read --of said--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Masami (JP Pat. 08-340021).

Referring to Claim 1, Masami discloses, in Fig. 1, a semiconductor package comprising: a semiconductor device (2) with one or more device-side electrodes (4) being formed on a circuit-bearing surface; and a flexible substrate having a patterned wiring (32) and a polyimide layer which functions as a thermoplastic insulating layer (30, 31) formed on either or both sides of the patterned wiring (32) (par. 45 and 46), the flexible substrate being bent around said semiconductor device (2), wherein: said flexible substrate has a first electrode (17) provided on said semiconductor device-side surface of said flexible substrate, the first electrode (17) being connected to said device-side electrode (4) of said semiconductor device and sealed by said thermoplastic insulating layer (30, 31), and a second electrode (21, 23) provided on a surface different from the surface on which said first electrode (17) is provided; and said flexible substrate has at least two or more layers of patterned wiring formed thereon (Fig. 1; abstract; par. 58 and 59).

Referring to Claim 2, Masami discloses all of the limitations of Claim 1 wherein said flexible substrate has a groove (100) as shown below in Fig. 1.

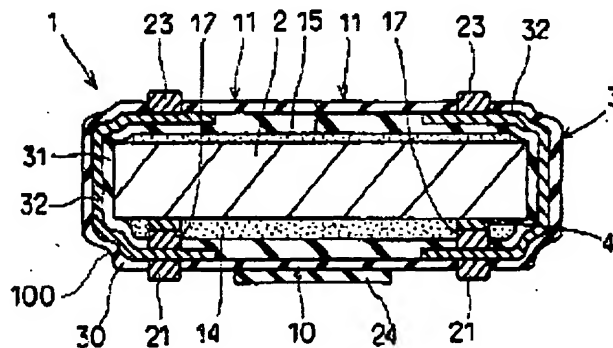


Figure 1: Includes reference character 100 for clarity

Referring to Claim 8, Masami discloses all of the limitations of Claim 1 wherein a plurality of semiconductor packages form stacked semiconductor package and are electrically connected via said electrodes and three-dimensionally stacked in layers (see Drawings 8, 9 and 12-17).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masami as applied to Claim 2 above, and further in view of Yoichiro (JP Pat. 2001-308261).

Referring to Claims 3 and 5, Masami discloses all of the limitations of Claims 1 and 2 but does not disclose wherein said flexible substrate has a cavity formed on said flexible substrate so as to accommodate said semiconductor device in said cavity portion. Yoichiro discloses, Fig. 2-5, a technique in which a cavity is formed in a flexible substrate, and a semiconductor device is accommodated in the cavity (par. 12-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique taught by Yoichiro wherein a cavity is formed in a flexible substrate, and the semiconductor device as taught by Masami is

Art Unit: 2818

accommodated in the cavity because this combination is superior in the ease of a three-dimensional assembly and the repair workability (abstract).

***Allowable Subject Matter***

Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 6 is allowed.

Claim 7 would be allowed pending minor claim objection.

The following is an examiner's statement of reasons for allowance:

Referring to Claim 4, the prior art taken alone or in combination neither teach nor makes obvious the claimed invention wherein said flexible substrate includes portions which are folded back to be directly adhered to each other, the folded-back portions defining a recessed portion, said semiconductor device being disposed within said recessed portion.

Referring to Claim 6, the prior art taken alone or in combination neither teach nor makes obvious the claimed invention wherein said flexible substrate includes portions which are folded back at bends to be directly adhered to each other.

Referring to Claim 7, the prior art taken alone or in combination neither teach nor makes obvious the claimed invention wherein the semiconductor device is

Art Unit: 2818

accommodated in a recessed portion created by the portions of said flexible substrate being folded back to be directly adhered to each other.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


### ***Telephone / Fax Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Earl N. Taylor whose telephone number is (571) 272-8894. The examiner can normally be reached on Monday-Friday from 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: Earl N. Taylor

  
David Nelms  
Supervisory Patent Examiner  
Technology Center 2800